

## Claims

- 1 1. (original) A method for displaying an image only to an authorized user,  
2 comprising:  
3       generating a data image;  
4       generating a mask image, wherein the mask image is a negation of the  
5 data image;  
6       selecting the data image or the mask image according to a select signal;  
7 and  
8       sequentially displaying the selected images on a display.
- 1 2. (original) The method of claim 1 further comprising;  
2       opening an optical shutter device when the data image is displayed;  
3       shutting the optical shutter device when the mask image is displayed so  
4 that only the data image is perceived by the authorized user viewing the display  
5 device through the optical shutter device, and a gray image is perceived by an  
6 unauthorized user viewing the data and mask images directly, the opening and  
7 shutting synchronized in phase and frequency to the select signal.
- 1 3. (original) The method of claim 2 wherein the optical shutter device includes  
2 a polarizing lens on either side of a ferro-electric liquid crystal polarization  
3 rotator.
- 1 4. (original) The method of claim 2 further comprising:  
2       synchronizing the displaying, and the opening and shutting by a wire  
3 link.

- 1 5. (original) The method of claim 2 further comprising:  
2 synchronizing the displaying, and the opening and shutting by a wireless  
3 link.
- 1 6. (original) The method of claim 5 wherein the synchronization is according to  
2 a phase of the select signal.
- 1 7. (original) The method of claim 1 wherein each image is a color image, and  
2 the negation is done independently for each color channel of the color image.
- 1 8. (original) The method of claim 7 further comprising:  
2 gamma-correcting each color channel after the negation.
- 1 9. (original) The method of claim 7 wherein each input pixel of each color  
2 image has an intensity in a range from 0 to 255, and each output pixel is  
3 determined by:  
4 
$$\text{output} = 255((\text{input}/255)^{1/\gamma}) + 0.5.$$
- 1 10. (original) The method of claim 1 wherein the select signal is generated by a  
2 clock, and further comprising:  
3 alternately selecting the data and mask images according to clock cycles.
- 1 11. (original) The method of claim 1 wherein the select signal is generated by a  
2 random generator.

1 12. (currently amended) The method of claim 11 wherein the displayed images  
2 occur in pairs so that each pair includes ~~the~~ a first image and ~~the~~ a second  
3 image in a random order.

1 13. (original) The method of claim 11 wherein the random generator operates  
2 according to an internal seed value and a real-time supplied value.

1 14. (currently amended) The method of claim 2 further comprising:  
2 generating a first random select signal to select the displayed images;  
3 generating a second random select signal to open and shut the optical  
4 shutter device; and  
5 synchronizing the second ~~random~~ random select signal to the first ~~and~~  
6 random select signal.

1 15. (original) The method of claim 1 wherein each data image includes a  
2 plurality of pixels, and further comprising:  
3 negating each pixel of the data image serially to generate each  
4 corresponding pixel of the mask image; and  
5 serially selecting each pixel of the data image or the mask image  
6 according to a select signal; and  
7 sequentially displaying the selected pixels on a display device.

1 16. (original) The method of claim 15 further comprising:  
2 opening an optical shutter device when the selected pixel of the data  
3 image is displayed;  
4 shutting the optical shutter device when the selected pixel of the mask  
5 image is displayed so that only the data image is perceived by the authorized

6 user viewing the display device through the optical shutter device, and a gray  
7 image is perceived by an unauthorized user viewing the data and mask images  
8 directly, the opening and shutting synchronized in phase and frequency to the  
9 select signal.

1 17. (original) The method of claim 16 wherein the select signal is generated by  
2 a clock, and further comprising:  
3 alternately selecting the pixel from the data and the pixel from the mask  
4 images according to clock cycles.

1 18. (original) The method of claim 1 wherein the select signal is generated by a  
2 random generator.

1 19. (original) The method of claim 1 wherein a plurality of data images are  
2 provided in a video, and each data image is sequentially negated to produce the  
3 corresponding mask image.

1 20. (original) A method for displaying an image only to an authorized user,  
2 comprising:  
3 generating a data image;  
4 generating a mask image, wherein the mask image is a combination of  
5 the data image and a public image;  
6 selecting the data image or the mask image according to a select signal;  
7 and  
8 sequentially displaying the selected images on a display device.

1 21. (original) The method of claim 20 wherein the data image  $P$  is scaled and  
2 off-set according to  $\alpha P + A$ , where  $\alpha$  and  $A$  are first scaling and -offset  
3 parameters, and wherein a secret image is scaled and off-set according to  $\beta$   
4 and  $B$ , where  $\beta$  and  $B$  are second scaling and -offset parameters, and wherein  
5 the combining adds the scaled and off-set data and secret images to produce the  
6 mask image.

1 22. (original) The method of claim 21 wherein the first and second scaled and  
2 off-set parameters are constrained to inequalities  $\alpha + \beta \leq 1$ , and  $\alpha + A \leq B$ .

1 23. (original) The method of claim 20 further comprising;  
2 opening an optical shutter device when the data image is displayed;  
3 shutting the optical shutter device when the mask image is displayed so  
4 that only the data image is perceived by the authorized user viewing the display  
5 device through the optical shutter device, and a gray image is perceived by an  
6 unauthorized user viewing the data and mask images directly, the opening and  
7 shutting synchronized in phase and frequency to the select signal.

1 24. (original) The method of claim 20 wherein the select signal is generated by  
2 a clock, and further comprising:  
3 alternately selecting the data and mask images according to clock cycles.

1 25. (original) An apparatus for displaying an image only to an authorized user,  
2 comprising:  
3 a video camera generating a data image;

4 an inverter for generating a mask image, wherein the mask image is a  
5 negation of the data image;  
6 a controller generating a select signal for selecting the data image or the  
7 mask image; and  
8 a display device for sequentially displaying selected images on a display  
9 device.

1 26. (original) The apparatus of claim 25 further comprising:

2 an optical shutter device opened when the data image is displayed and  
3 closed when the mask image is displayed so that only the data image is  
4 perceived by the authorized user viewing the display device through the optical  
5 shutter device, and a gray image is perceived by an unauthorized user viewing  
6 the data and mask images directly, the opening and shutting of the optical  
7 shutter device synchronized in phase and frequency to the select signal.

1 27. (original) The apparatus of claim 25 wherein the data and mask images are  
2 selected periodically.

1 28. (original) The apparatus of claim 25 wherein the data and mask images are  
2 selected randomly.

1 29. (currently amended) The apparatus of claim 25 ~~wherein the 25~~ wherein  
2 each image includes a plurality of pixels, and wherein each pixel of the data  
3 image negated serially.